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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,804	12/17/2001	Nobuyuki Takahashi	001425-121	7371

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EXAMINER

MOORE, KARLA A

ART UNIT PAPER NUMBER

1763

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/015,804

Applicant(s)

TAKAHASHI, NOBUYUKI

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1003.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,738,767 to Coad et al. in view of U.S. Patent No. 4,651,674 to Hayashi et al. and U.S. Patent No. 6,205,870 to Hosokawa et al.

3. Coad et al. disclose a substrate processing device in Figures 1-3 substantially as claimed and comprising: a plurality of vacuum process chambers (10, 12, 14, 16, 18, 20), each of which administers a prescribed process to a substrate therein; a through-chamber (24) which constitutes a vacuum chamber, the plurality of vacuum process chambers are hermetically-connected to a perimeter of the through-chamber (via gate valves 50, 52, 54, 56, 58, 60); a carry system which carries a substrate in sequence, via the through-chamber, to a plurality of vacuum process chambers, the carry system comprises a substrate holder (64, 66) which holds the substrate upright.

4. However, Coad et al. fail to teach the substrate holder holding two substrates in such a way that a plate surface thereof forms an angle to the horizontal between 60 and 90 degrees.

5. Hayashi et al. teach the use of substrate holder for supporting two substrates at an angle of between 60 and 90 degrees to the horizontal for the purpose of supporting the substrates on a susceptor in a small area, thus achieving a compact apparatus (column 2, rows 20).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a susceptor for supporting two substrates at an angle of between 60 and 90 degrees to the horizontal in Coad et al. in order to support substrates on a susceptor in a small area, thus

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achieving a compact apparatus. Additionally, it would be obvious to support two substrates simultaneously on the substrate holder in Coad et al. in order to increase the throughput of the apparatus as illustrated in Hayashi et al.

7. Coad et al. further fails to teach the apparatus comprising a horizontal movement mechanism which moves a substrate holder via the through-chamber to the plurality of process chambers and alignment chamber hermetically connected to the through chamber, wherein when a substrate holder is in the alignment chamber, the horizontal movement mechanism is able to move the substrate holder such that a substrate being held in the substrate holder is able to move sideways with respect to a longitudinal direction of the plate surface thereof, as well as in the longitudinal direction thereof so as to align the carry system with the through-chamber.

8. Hosokawa et al. discloses the use of an alignment chamber (12) hermetically connected to a through chamber (using load lock chambers, 14 and 16), wherein a substrate holder (36) in the alignment chamber, comprises a horizontal movement mechanism and various other movement mechanisms (column 3, rows 51-67) for the purpose of controllably positioning the substrate with high accuracy.

9. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a horizontal movement mechanism in Coad et al. in order to controllably position the substrate with high accuracy as taught by Hosokawa et al.

10. With respect to claims 2 and 3, 6-10 and 11-12, the through-chamber further constitutes a direction altering chamber comprising a direction altering mechanism (70) which alters the direction of movement of the substrate holder using the horizontal movement mechanism, wherein the direction-altering mechanism alters the direction of movement by rotating the substrate holder and the horizontal movement mechanism about a vertical rotating axis (72). The vertical rotating axis is coincident with a center axis of the direction-altering chamber.

11. With respect to claims 6-10, which further recite a substrate processing device comprising a plurality of through-chambers, the courts have ruled that the mere duplication of parts has no patentable

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significance unless a new and unexpected result is produced. In re Harza, 274 F. 2d 669, 124 USPQ 378 (CCPA 1960). In this case, additional chambers would obviously increase throughput.

12. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coad et al., Hayashi et al, and Hosokawa et al. as applied to claims 1-12 above, and further in view of U.S. Patent No. 6,451,181 to Denning et al.

13. Coad et al., Hayashi et al, and Hosokawa et al. disclose the invention substantially as claimed and as described above.

14. However, Coad et al., Hayashi et al, and Hosokawa et al. fail to teach the alignment chamber comprising a heater.

15. Denning et al. disclose a heater provided in an alignment chamber for the purpose removing organic contamination, water or other undesirable material from the wafer prior to placing the wafer into one of the various processing chambers (column 5, rows 14-20).

16. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a heater in the alignment chamber in Coad et al., Hayashi et al, and Hosokawa et al. in order to remove organic contamination, water or other undesirable material from the wafer prior to placing the wafer into one of the various processing chamber as taught by Denning et al.

#### ***Response to Arguments***

17. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection. New art has been supplied to account for the structure (an alignment chamber with horizontal translation means and heating means) added as a result of the amendment.

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**Conclusion**

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km  
18 December 2003

  
Parviz Hassanzadeh  
Primary Examiner  
Art Unit 1763